

METHOD AND APPARATUSES FOR MAKING AND USING BI-MODAL  
ABRASIVE SLURRIES FOR MECHANICAL AND CHEMICAL-MECHANICAL  
PLANARIZATION OF MICROELECTRONIC-DEVICE SUBSTRATE  
ASSEMBLIES

ABSTRACT OF THE DISCLOSURE

A method and apparatus for making and using slurries for planarizing microelectronic-device substrate assemblies in mechanical and/or chemical-mechanical planarization processes. In one aspect of the invention, a bi-modal slurry is fabricated by removing a first type of selected abrasive particles from a first abrasive particle solution to form a treated flow of the first solution. The treated flow of the first solution is then combined with a flow of a second solution having a plurality of second abrasive particles. The abrasive particles of the first type are accordingly removed from the first solution separately from the second solution such that the second abrasive particles in the second solution do not affect the removal of the abrasive particles of the first type from the first solution. In another aspect of the invention, a second type of selected abrasive particles are removed from the second solution prior to mixing with the first solution. Thus, by combining the treated flow of the first solution with either the treated or untreated flow of the second solution, a single flow of an abrasive slurry is produced having a first distribution of the first abrasive particles about a first mode and a second distribution of the second abrasive particles about a second mode.